Cassatt

Load Management Technology Proposal

To the California Energy Commission Load Management Standards Workshop

Docket 08-DR-01

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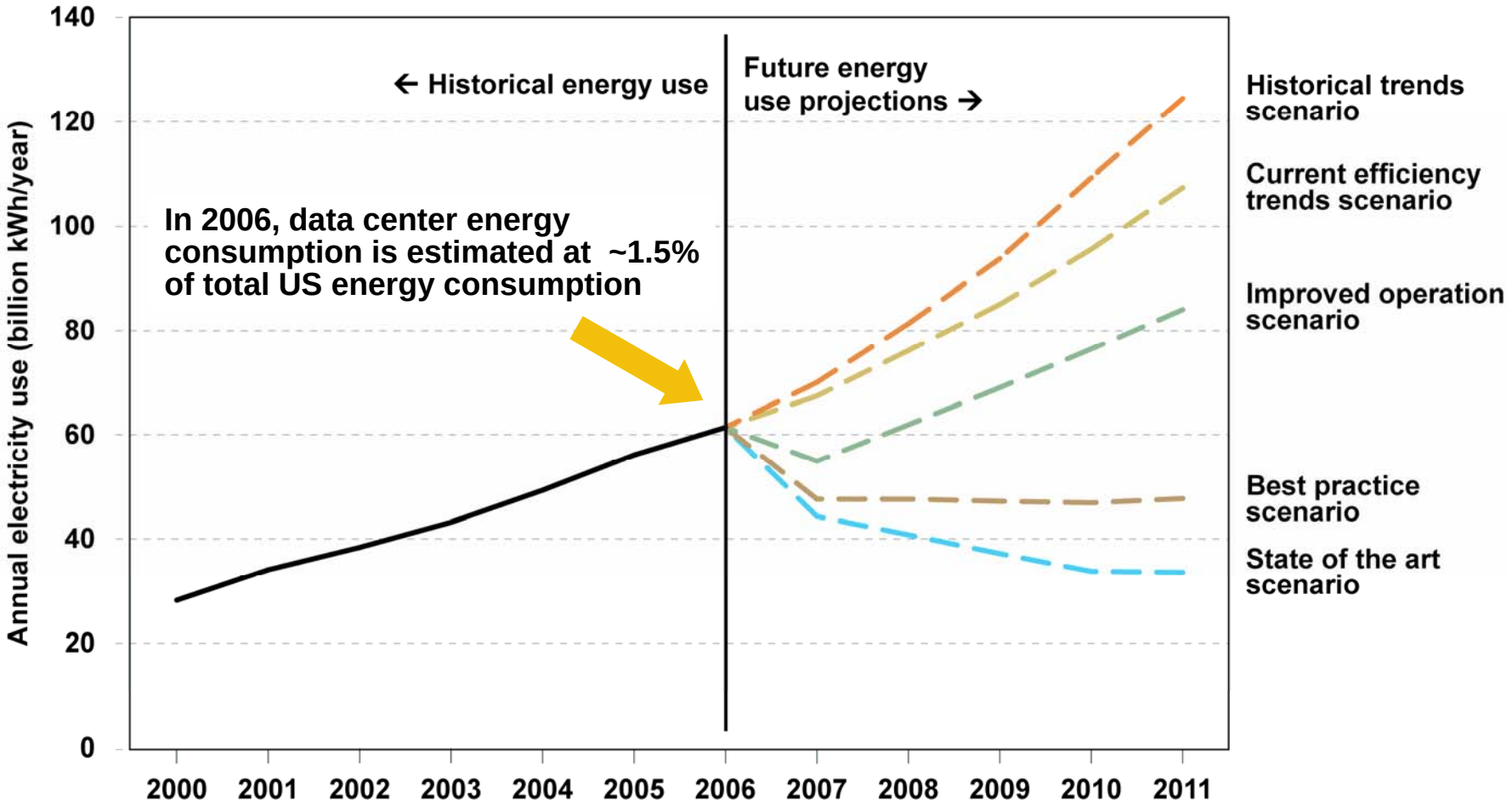
How Big is the Data Center Problem?

US Data Center Energy Consumption (estimates from the US EPA report, 2007)



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Data center servers (computers) waste huge amounts of power when idle

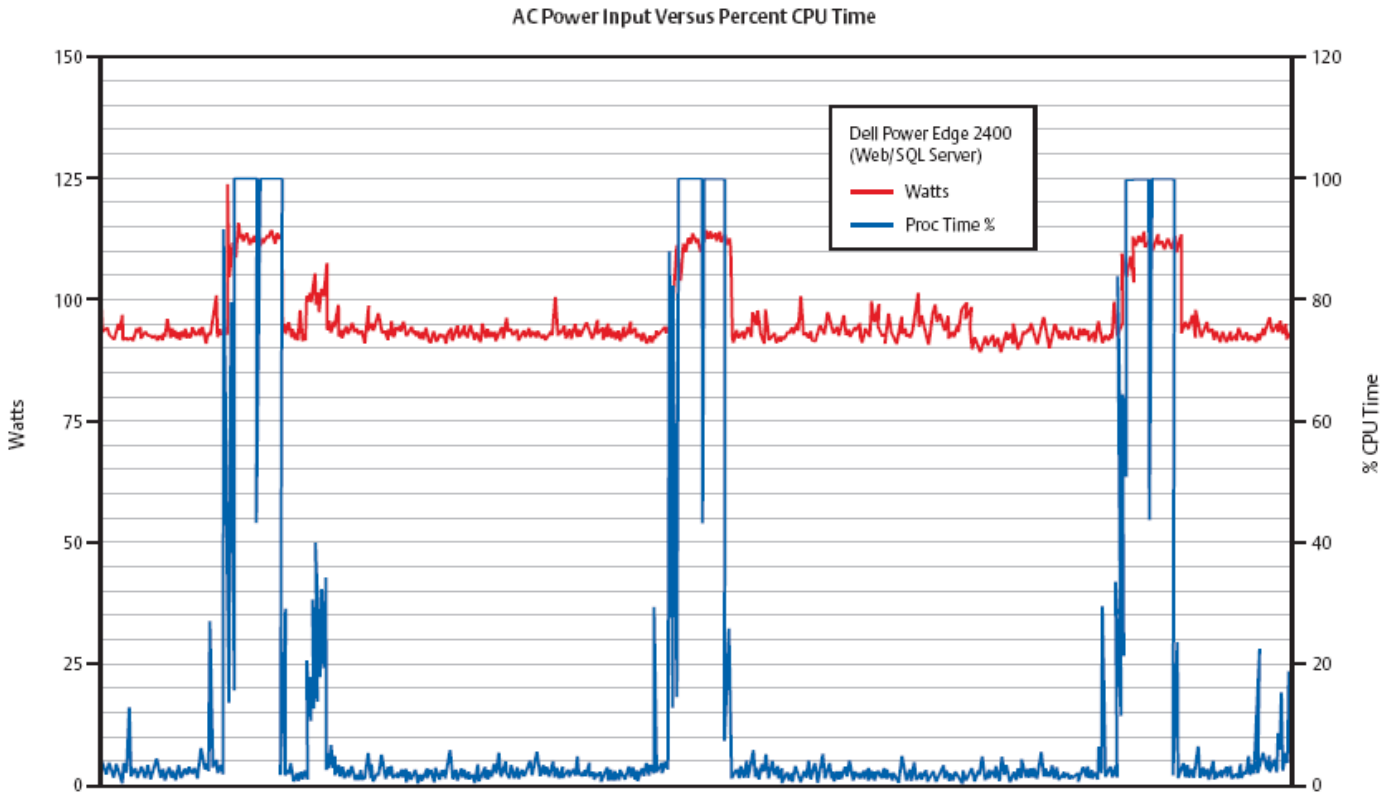

Figure 11. Low processor activity does not translate into low power consumption.

Source: *"Energy Logic: Reducing Data Center Energy Consumption by Creating Savings that Cascade Across Systems"* Emerson Electric, 2007

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Active Power Management:
A Unique Approach to Solving Idle Power Waste and Responding to Load-Shedding Events

Policy-Based—Business priorities determine when, where, and how to power off servers; Easily integrated w/external triggers like DR.

Application Aware—Knows when and how applications must be systematically powered off and brought back on, as well as application inter-dependencies across multiple servers

Hardware and Software Independent— Manages any platform, requires no change to existing hardware and software configurations; compatible with existing power distribution/UPS equipment

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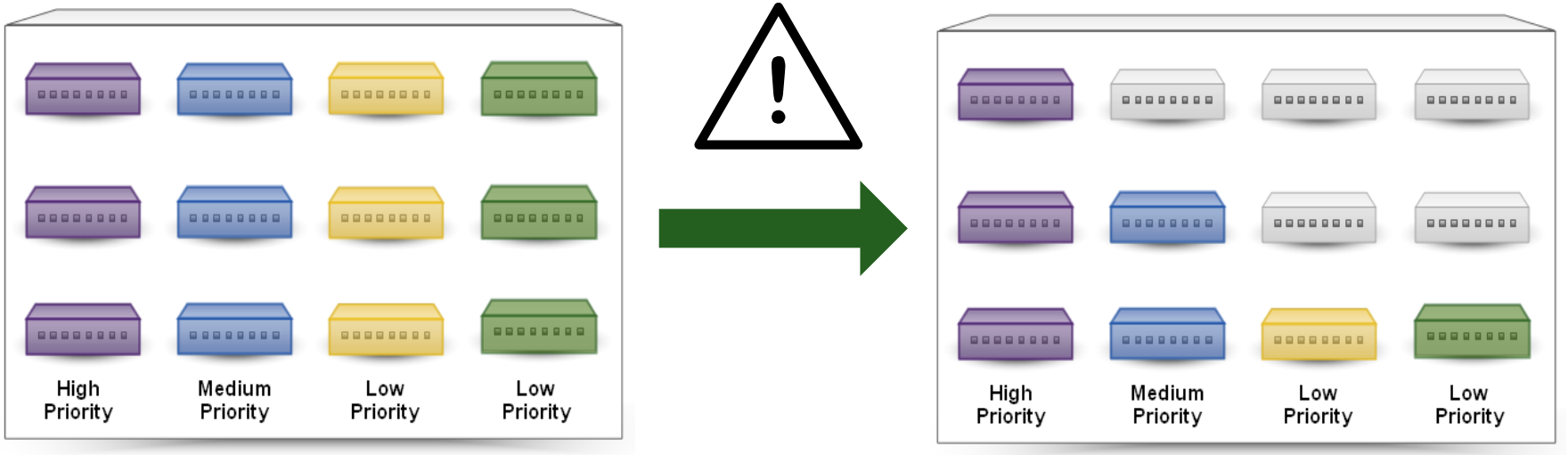
Demand Response Scenario: Minimize powered-on servers



Power reduction of 15% or as-required

Similar to “dimming the lights” during critical periods

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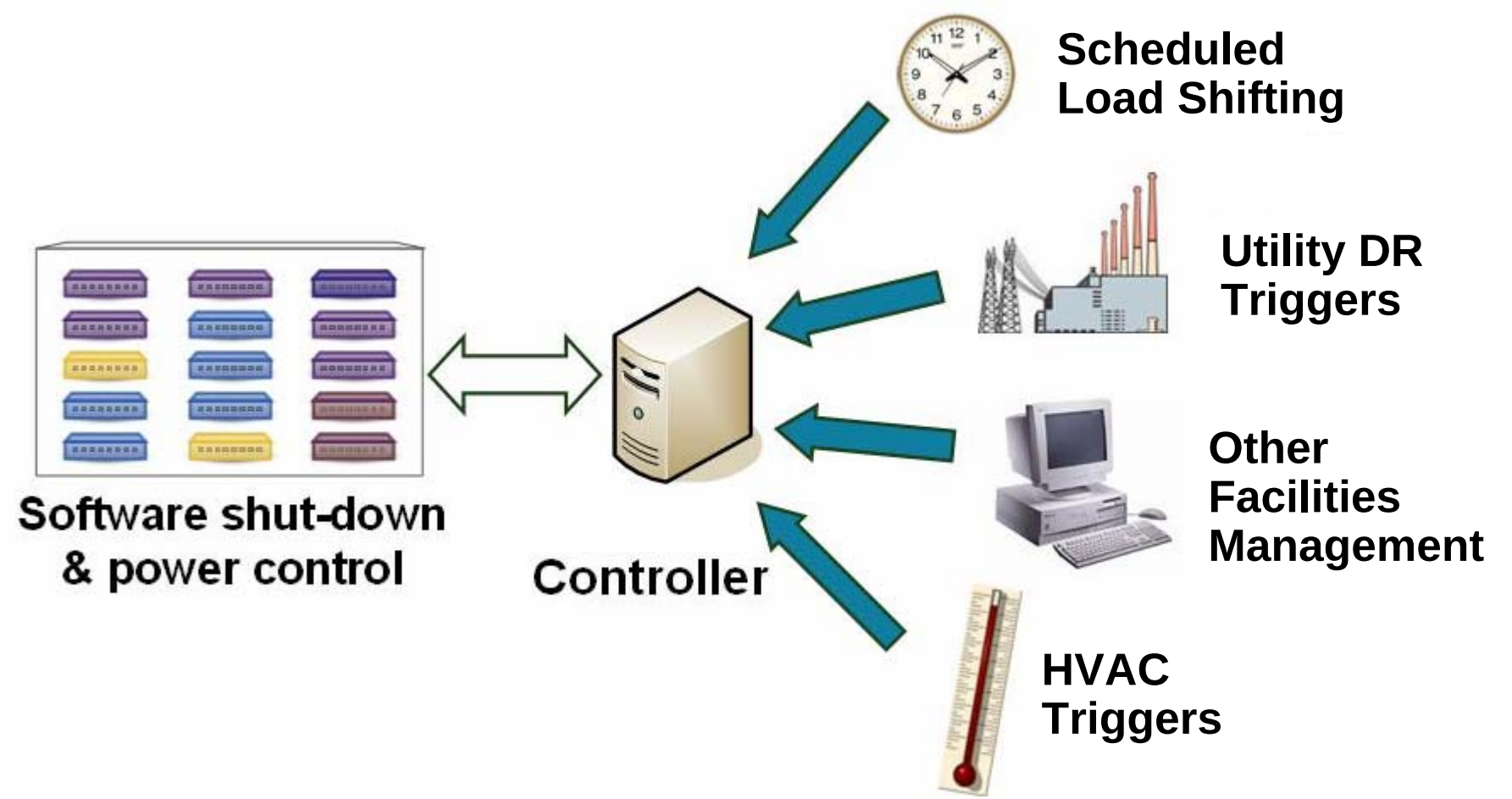
Active Power Management: Functional Overview



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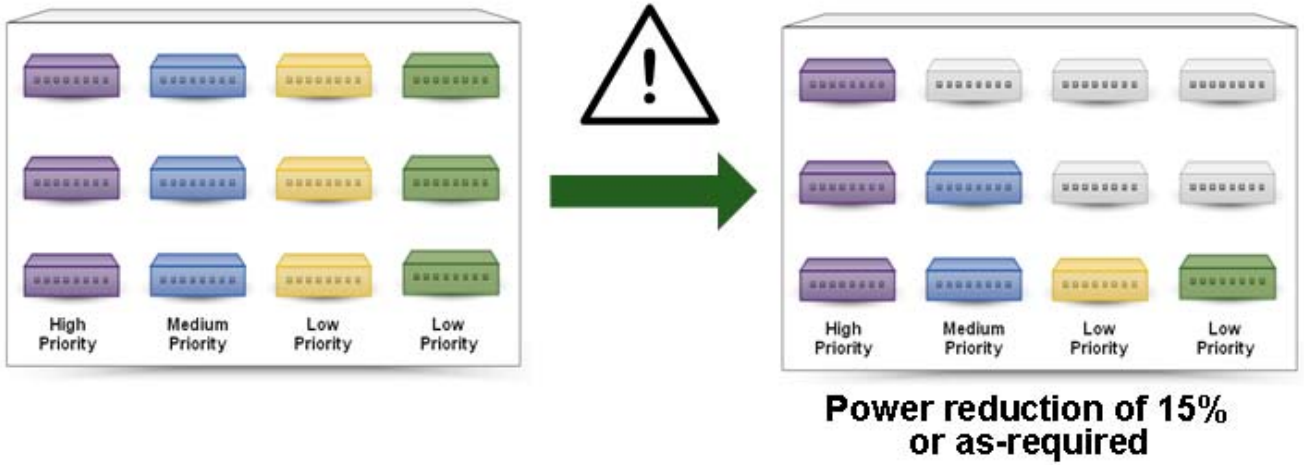
How Big is the potential?



Example:

- 20,000 f^2 data center
- 6,000 servers @ 200w ea. (1.2 mW + HVAC)
- 15% reduction during DR event:
  - ~ 180 kW direct reduction
  - ~ 200 kW indirect reduction from shed HVAC load

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